

**Acquitaine – Karnataka Collaboration  
Student Project for Pre-PhD Student Exchange**

**Scientific Proposal**

Project Title	Characterization of <i>Candida albicans</i> polymicrobial biofilms & their control using household herbs & spices
Scientific Domain	Life Sciences: Medical Microbiology & Phytochemicals
Summary	<p><i>Candida albicans</i>, an opportunistic dimorphic yeast forms extensive biofilm on medical prosthetics &amp; is the cause of recalcitrant &amp; recurring candidiasis in man. <i>C. albicans</i> forms polymicrobial associations with several bacteria &amp; viruses. Microbial infections associated with biofilms have over the years become difficult to treat using conventional therapy. Several plant products are known to control microbial agents.</p> <p>Characterization of the biofilm to understand the biofilm architecture is key to controlling candidal infections. This study involves biochemical &amp; structural characterization of <i>C. albicans</i> polymicrobial biofilms. Crucial indicators like growth, viability, cell mass &amp; biomass will also be monitored. Many of the commonly used natural antimicrobial herbs &amp; spices will be used to control polymicrobial <i>Candida albicans</i> biofilms. Thereby alternate methods of control of <i>Candida albicans</i> polymicrobial biofilms will be developed. These alternate strategies will also be compared with conventional control measures.</p>
Student Profile Wished	Bachelors or Masters students
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Timing & Duration for project (Give approx. ranges)	Aug –Nov 2015 (03 Months)
Representative References	<ul style="list-style-type: none"> <li>• Amruta Jogalekar, Priya Ashrit, Bindu Sadanandan (2014) Comparative Study on <i>Candida</i> biofilm Quantification Methods. International Review of Applied Biotechnology &amp; Biochemistry. 2(1):139-144.</li> <li>• Bindu Sadanandan, Prerna lal, Rhonchamo Humtsoe, Amit Mishra (2014) Antibacterial activity of Garlic against <i>Bacillus subtilis</i>. International Review of Applied Biotechnology &amp; Biochemistry. 2(1):107-119. ISSN 2349-9532</li> <li>• Harriott MM and Noverr CM (2009) <i>Candida albicans</i> and <i>Staphylococcus aureus</i> Form Polymicrobial Biofilms: Effects on Antimicrobial Resistance; Antimicrob. Agents and Chemother. 53(9): p 3914–3922.</li> <li>• Peters MB, Jabra-Rizk AM , O'May A Graeme, Costerton JW and Shirtliff EM (2012) Polymicrobial Interactions: Impact on Pathogenesis and Human Disease. Am. Soc. Microbiol 25(1): p 193-221.</li> <li>• Priya Ashrit, Amruta Jogalekar, Bindu Sadanandan (2014) <i>Candida albicans</i> biofilm and its Polymicrobial Associations. International Review of Applied Biotechnology &amp; Biochemistry. 2(1):139-144.</li> <li>• Sandasi M (2008) The Effect of Plant Extracts on Microbial Biofilm Formation and Development, department pharm. Sci.: fac. sci.: Tshwane univ. technol.: p 5: (Thesis p1-173).</li> </ul>